

Cutes Corporation

Separator & Drain Pump Products Manual



Separator & Drain Pump Product Manual

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NOTE:

- 1. Please read this manual carefully before installing and using the products.**
- 2. If the installation and use are not based on the manual and cause the products to be damaged, we will collect the cost and proper service charge when our company provides service.**
- 3. Before starting the machine, please check turning direction.**

1. Description:

SP series separators and CKD series drain pumps are accessories of vacuum pump, using for dewatering of paper machine. Normally the vacuum pumps extract a mixture of gas and water from couch rolls, suction pickup & transfer rolls, suction press or other wet parts in the paper making process, but when extracting, there will be some problems:

- a) Waste a lot of power when vacuum pumps extract water.
- b) Vacuum level will be low or unstable.
- c) The life of vacuum pump will be shortened because of dirt from whitewater.
- d) There will be some environmental pollution problems as the whitewater can't be recycled completely.

Our products can separate water and gas to solve above problems. Usually the product is used with liquid ring vacuum pump.

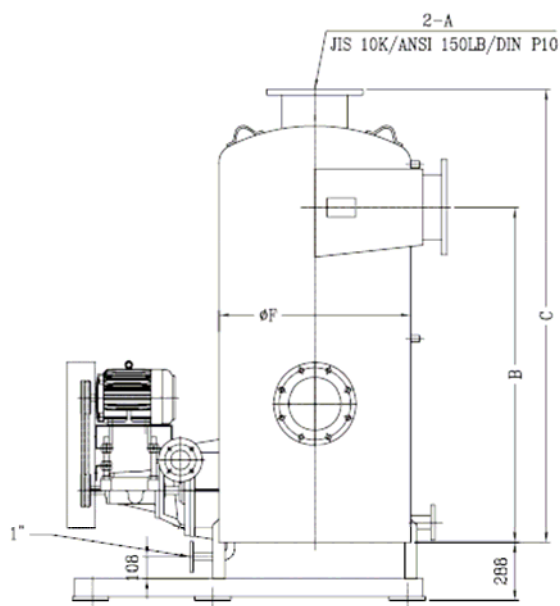
2. Applications:

The products are applicable for paper & pulp industry, also for other industries such as food and etc.

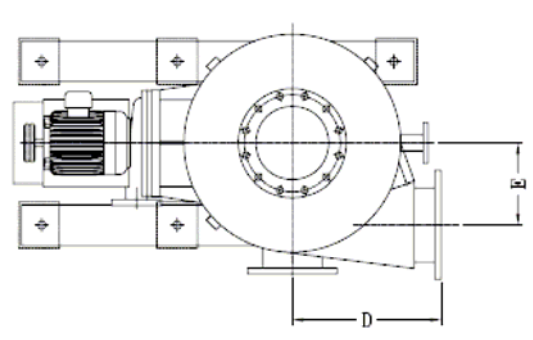
3. Material:

- The material of SP separator is SS41. SS304 and SS316 is also available.
- The impeller of CKD drain pump is SS304 or SS316, pump body is Cast Iron or Cast Steel or Stainless, according to customers' request.

4. Outline Dimension of Separator:



Model	A	B	C	D	E	F
SP-150	150A	1000	1335	365	200	500
SP-200	200A	1250	1665	455	250	600
SP-250	250A	1400	1890	550	300	800
SP-300	300A	1600	2355	730	400	900
SP-350	350A	2100	2720	900	500	1000
SP-400	400A	2150	2850	1000	550	1100
SP-450	450A	2250	3000	1100	600	1200



Remark: Inlet & outlet diameter could be on customer's request

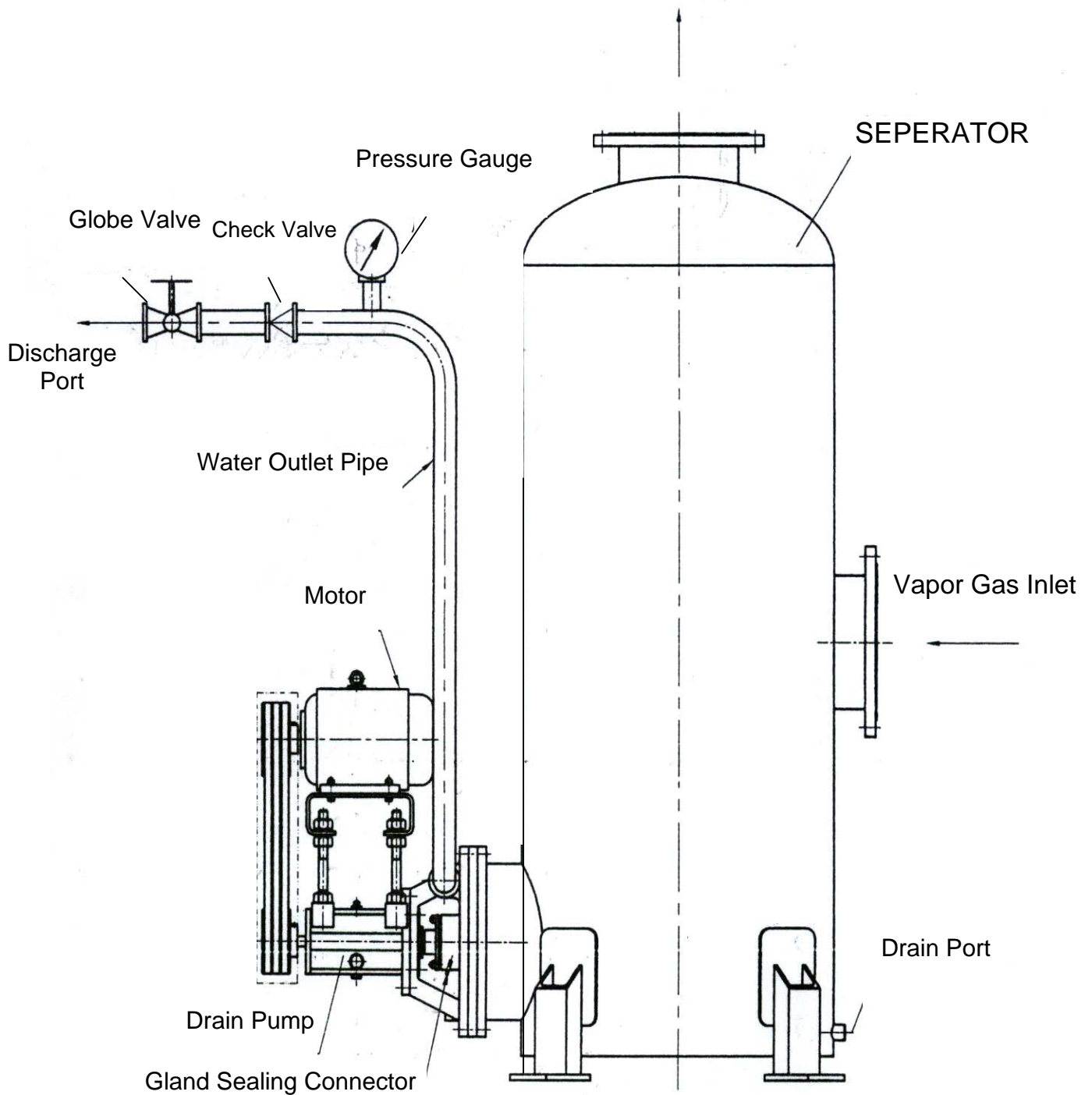
5. Specifications of Drain Pump:

Model	Speed	Motor (HP)	Capacity L/min @ Meter Head
CKD-065-A-50Hz	1500	5	710@15M
CKD-065-A-60Hz	1500	5	710@15M
CKD-065-B-50Hz	1750	7.5	1050@15M
CKD-065-B-60Hz	1750	7.5	1050@15M
CKD-065-C-50Hz	2000	10	1430@15M
CKD-065-B-60Hz	2000	10	1430@15M
CKD-100-A-50Hz	1500	10	1850@15M
CKD-100-A-60Hz	1500	10	1850@15M
CKD-100-B-50Hz	1750	15	2850@15M
CKD-100-B-60Hz	1750	15	2850@15M
CKD-100-C-50Hz	2000	20	3600@15M
CKD-100-C-60Hz	2000	20	3600@15M

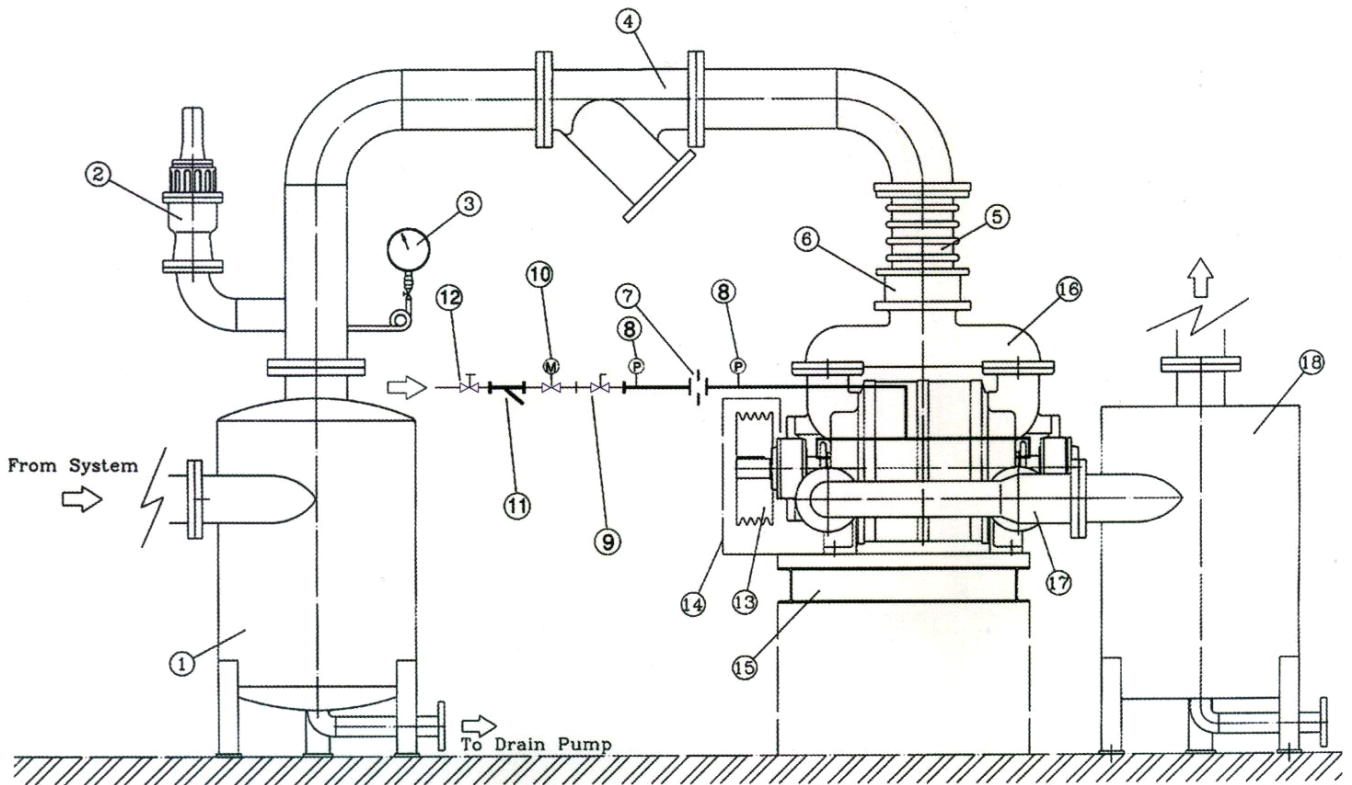
6. Installations:

a) Separator with Drain Pump:

Gas Outlet (connect to Vacuum pump)

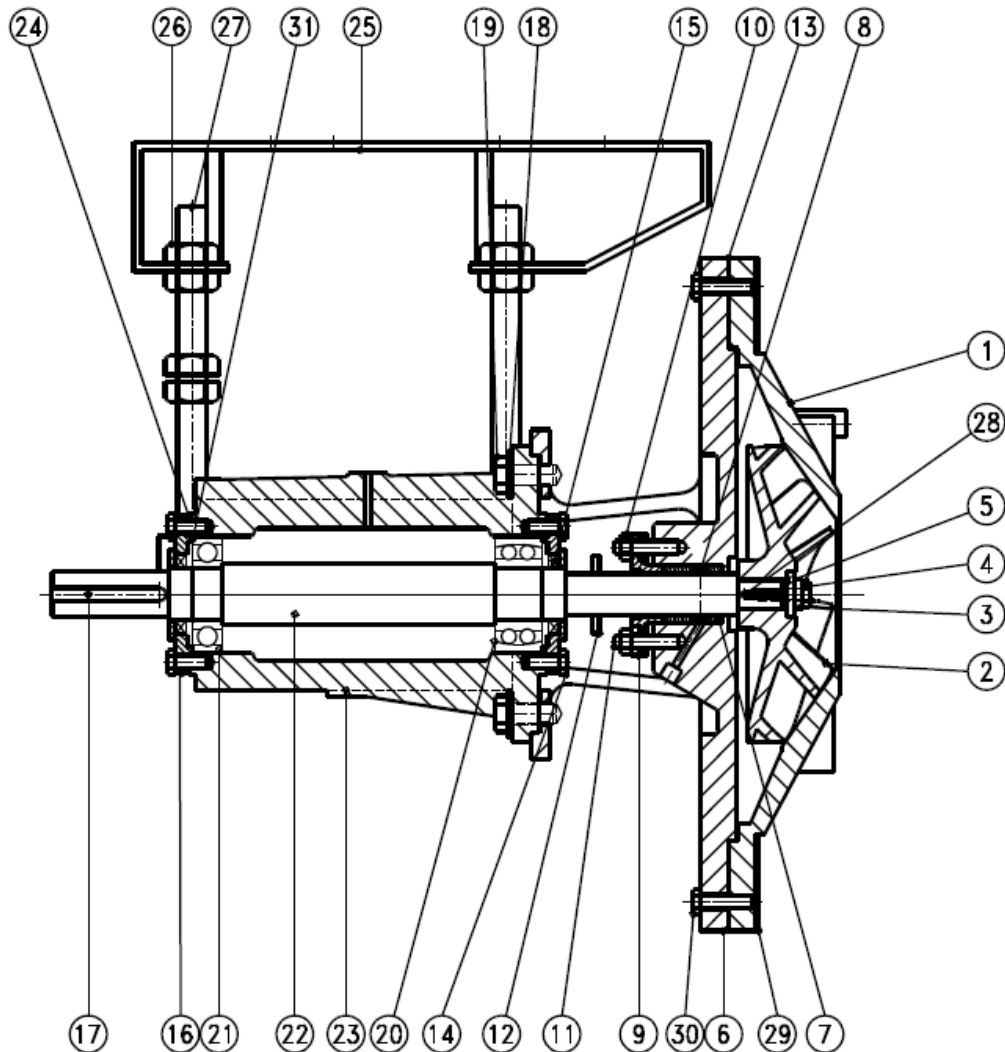


b) Complete with Vacuum Pump System:



1	INLET SEPAPATOR	入口水氣分離桶
2	VACUUM BRAKE	真空安全閥
3	VACUUM GAUGE	真空計
4	Y-STRAINER	Y型過濾器
5	EXPANSIVE JOINT	伸縮接管
6	CHECK VALVE	逆止閥
7	ORIFICE	孔口板
8	PRESSURE GUAGE	壓力計
9	ADJUSTING VALVE	水量調節閥
10	SOLENOID VALVE	電磁閥
11	Y-STRAINER	Y型過濾器
12	SHUTOFF VALVE	水量停止閥
13	PULLEY	皮帶輪
14	SAFTY GUAGD	安全蓋
15	BASE	底座
16	MANIFOLD INLET	入口連接管
17	MANIFOLD OUTLET	出口連接管
18	OUTLET SEPARATOR	出口水氣分離桶

7. Structural Drawing of Drain Pump:



Item	Name	Material	Item	Name	Material
1	SIDEPLATE	FC-25	17	SHAFT KEY	S45C
2	IMPELLER	SUS304	18	SPRING WASHER	
3	IMPELLER WASHER	SUS304	19	CAP SCREW	SWRM
4	IMPELLER SCREW	SUS304	20	BEARING	
5	IMPELLER LOCK WASHER	SUS304	21	BEARING	
6	CASING	FC-25	22	SHAFT	SUS410HT
7	PACKING		23	BEARING HOUSING	FCD
8	LANTREN RING		24	CAP GASKET	Oil Paper
9	SEAL GLAND	SUS304	25	MOTOR BASE	SS41
10	GLAND STUD NUT	SUS304	26	STUD NUT	SWRM
11	GLAND STUD	SUS304	27	MOTOR SUPPOSE STUD	SWRM
12	SLINGER	NBR	28	IMPELLER KEY	SUS316
13	GASKET		29	FLANGE GASKET	
14	SCREW	SWRM	30	SCREW	SUS304
15	LIP SEAL	NBR	31	SPRING WASHER	
16	BEARING CAP	SS41			

8. Operations and Maintenances:

- a) Prevent cavitations: There is a small hole on the impeller cover to prevent cavitations.
- b) Rotation speed: Drain pumps should be under 2400 RPM when transmission by pulleys.
- c) Rotation direction: it is clockwise when looking from the shaft end.
- d) Gland packing: There is a Cooling Water Connector in the stuff box to cool and lubricate shaft.
A normal flow ranging from 20~30 drops per minute out of a standard packed type stuffing box is desirable to provide for lubrication and dissipate generated heat. The pressure from the external flush line should be at least 0.7bar (~10PSI) above the pump discharge pressure to insure a flow of liquid into the stuffing box.
- e) Impeller: The impeller and cover are not closed, the gap between impeller and cover should be within 1mm, the performance will be not good if the gap is too wide.
- f) Disassembling: After separating drain pump and separator, then disassemble the impeller cover, impeller bolt, gaskets, and get the impeller out.
- g) Gaskets: Use gaskets (1mm thickness) to adjust the gap between impeller and cover.
- h) Transmission: The transmission of the drain is by pulley and belt, please check if the belt is too tight or loose.

9. Troubleshooting:

- a) Water can't be drained from drain pump
 - Check the discharge port.
 - Speed is too slow.
 - Pressure of system is too high.
 - Clean the impeller if it is too dirty.
 - Rotation direction is wrong.
- b) Capacity and head are not enough.
 - There are some leaks on suction port.
 - Speed is too slow.
 - Discharge port is too high.
 - Clean the impeller if it is too dirty.
 - Temperature of suction port or vacuum level is too high.
 - Breakdown on shaft, bearing or belt.
 - Rotation direction is wrong.
 - Resistance to water outlet pipe is too strong.
- c) The power of motor is too high.
 - Speed is too fast.
 - Capacity is too big.
 - Specific gravity of liquid is too high.
 - Viscosity of liquid is too high.
 - Voltage is too low.
 - Breakdown on impeller bolt or washer.
- d) Unusual vibration on drain pump.
 - Please refer to above a & b.
 - Pump and motor are not installed properly.
 - Clean the impeller if it is too dirty.
 - Breakdown on shaft, bearing or belt.